

# Building Blocks for the Future: Making Controlled Vocabularies Available for the Semantic Web

Dr. Barbara B. Tillett

Chief, Policy & Standards Division

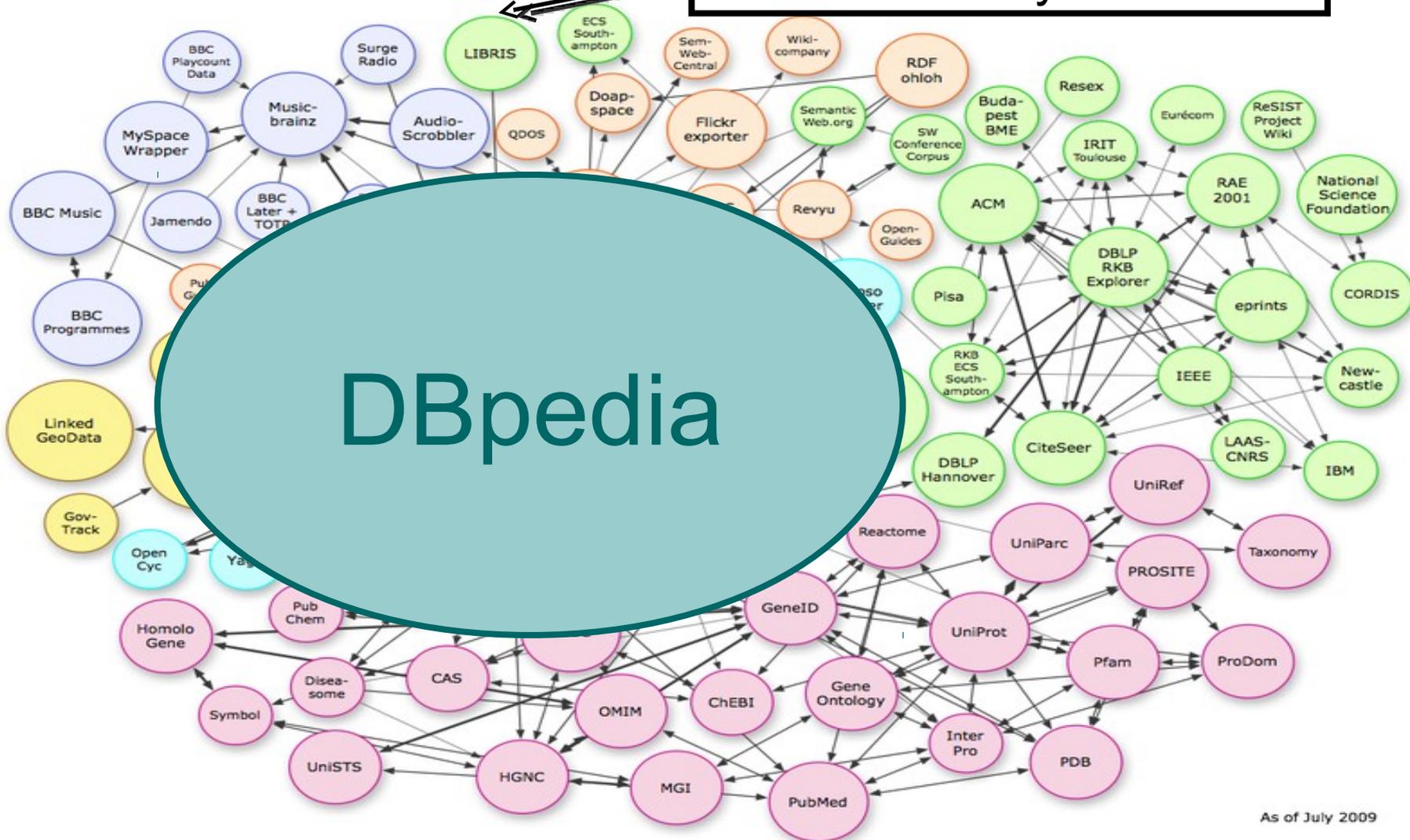
Library of Congress

For the Getty Research Institute Aug. 24, 2010

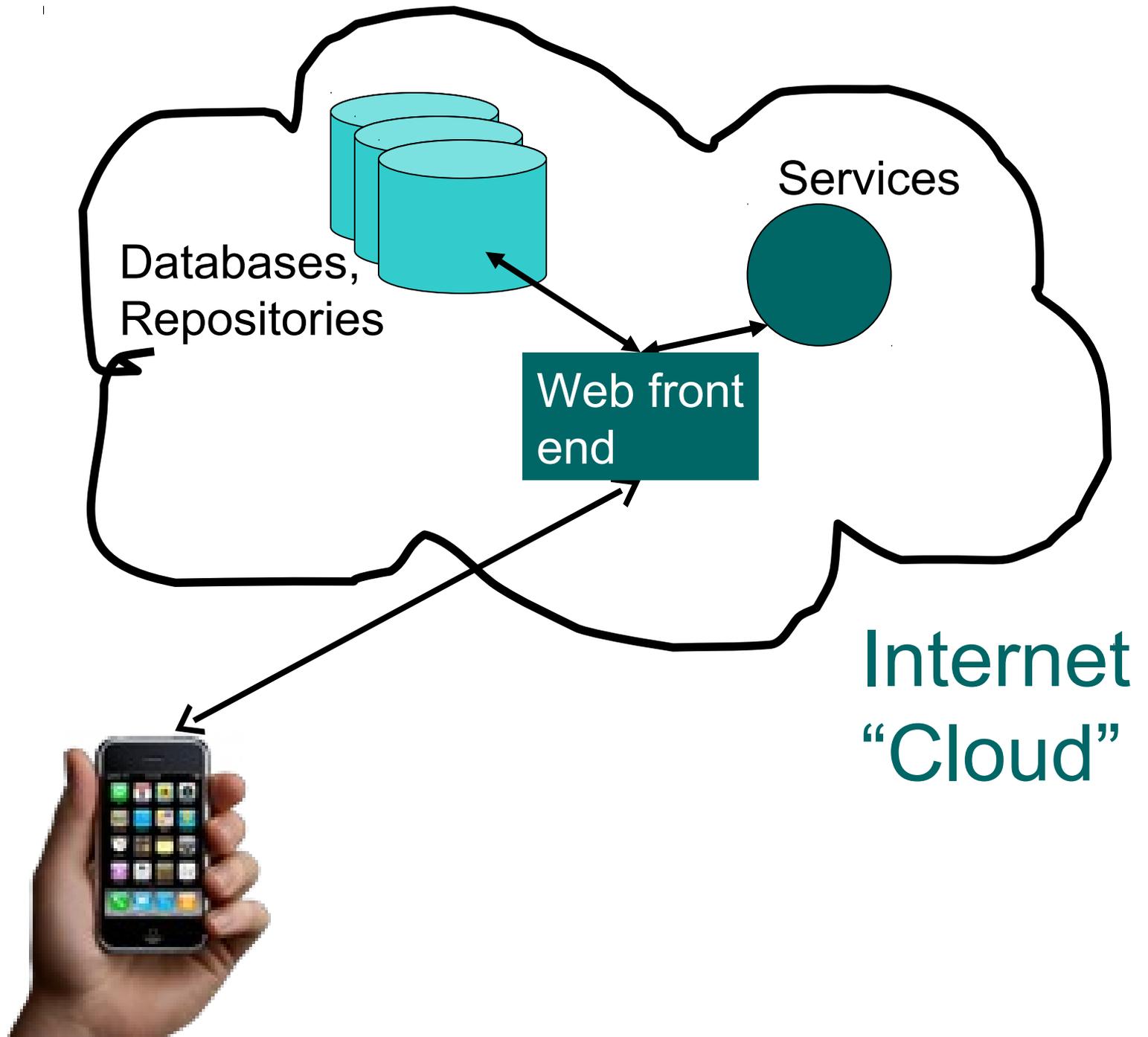
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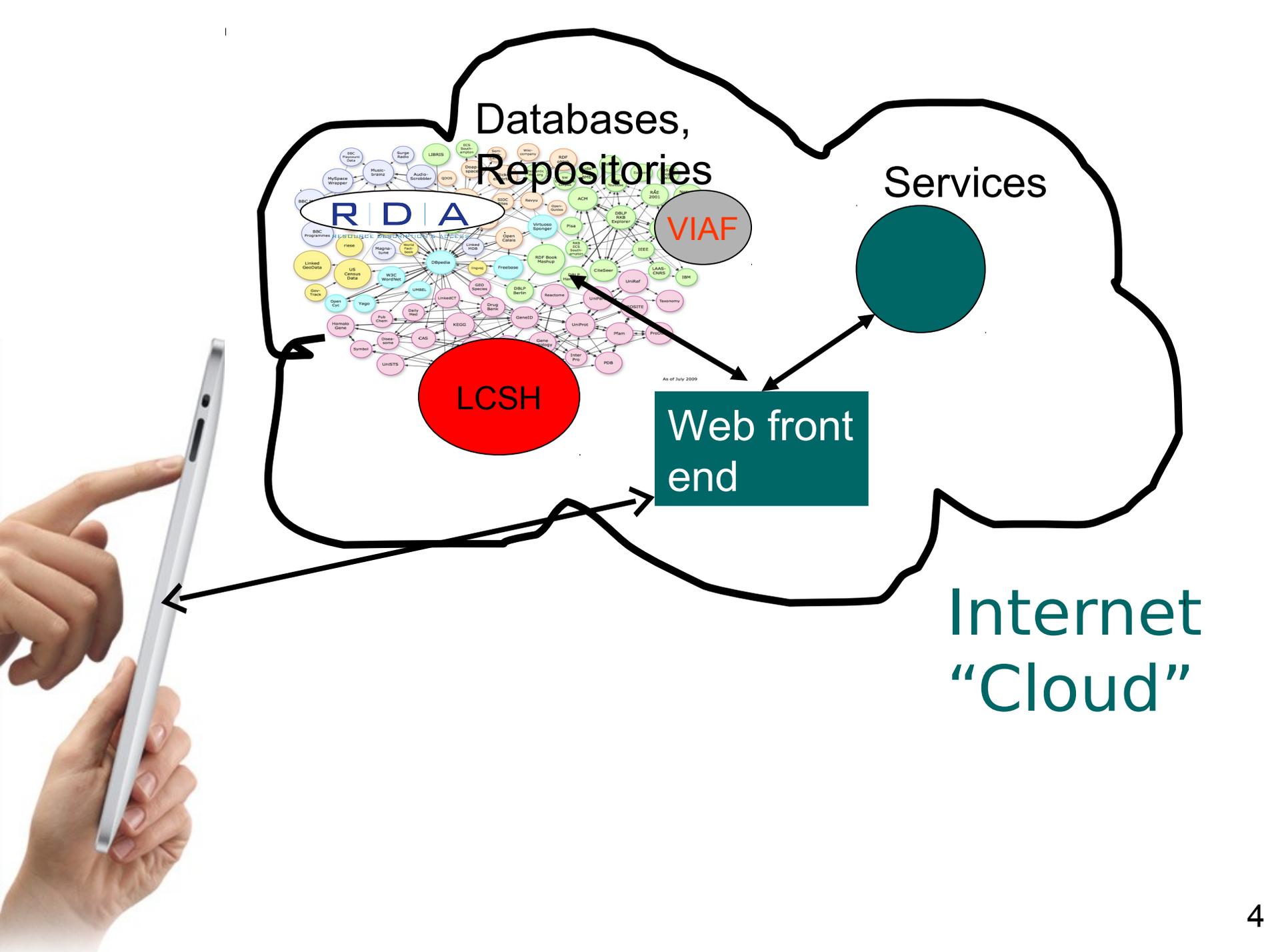
National Library of Sweden

DBpedia



As of July 2009





Databases,  
Repositories

Services

R | D | A

VIAF

LCSH

Web front  
end

Internet  
"Cloud"

# VIAF Objectives

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- Facilitate exposure of authority data
- Reduce cataloging costs
- Simplify authority control (creation and maintenance) internationally
- Provide authority data in form, language, and script users want

# VIAF

歌川， 広重 2 世 1826-1869

**Utagawa, Hiroshige 2sei 1826-1869**

**Utagawa, Hiroshige, 1826?-1869**



# VIAF: The Virtual International Authority File

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## **Original VIAF partners**

- Library of Congress (LC)
- Deutsche Nationalbibliothek (DNB)
- Bibliothèque nationale de France (BnF)
- **OCLC** - host
  
- Virtually combining the name authority files of all institutions into a single name authority service.
  
- <http://viaf.org/>

# Virtual International Authority File

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- Matches names across 20 authority files of 18 institutions
  - 13 million name records
  - 10 million personas
  - 4.5 million clusters



-  National Library of Australia
  -  National Library of the Czech Republic
  -  Bibliotheca Alexandrina (Egypt)
  -  Getty Research Institute
- 

-  Deutsche Nationalbibliothek
-  Bibliothèque nationale de France
-  National Library of Israel

-  Istituto Centrale per il Catalogo Unico (Italy)
-  Biblioteca Nacional de Portugal
-  Biblioteca Nacional de España
-  National Library of Sweden
-  Swiss National Library
-  Library of Congress/NACO
-  Vatican Library
-  NUKAT Center (Poland)
-  Library and Archives Canada
-  NII (Japan)
-  National Széchényi Library (Hungary)

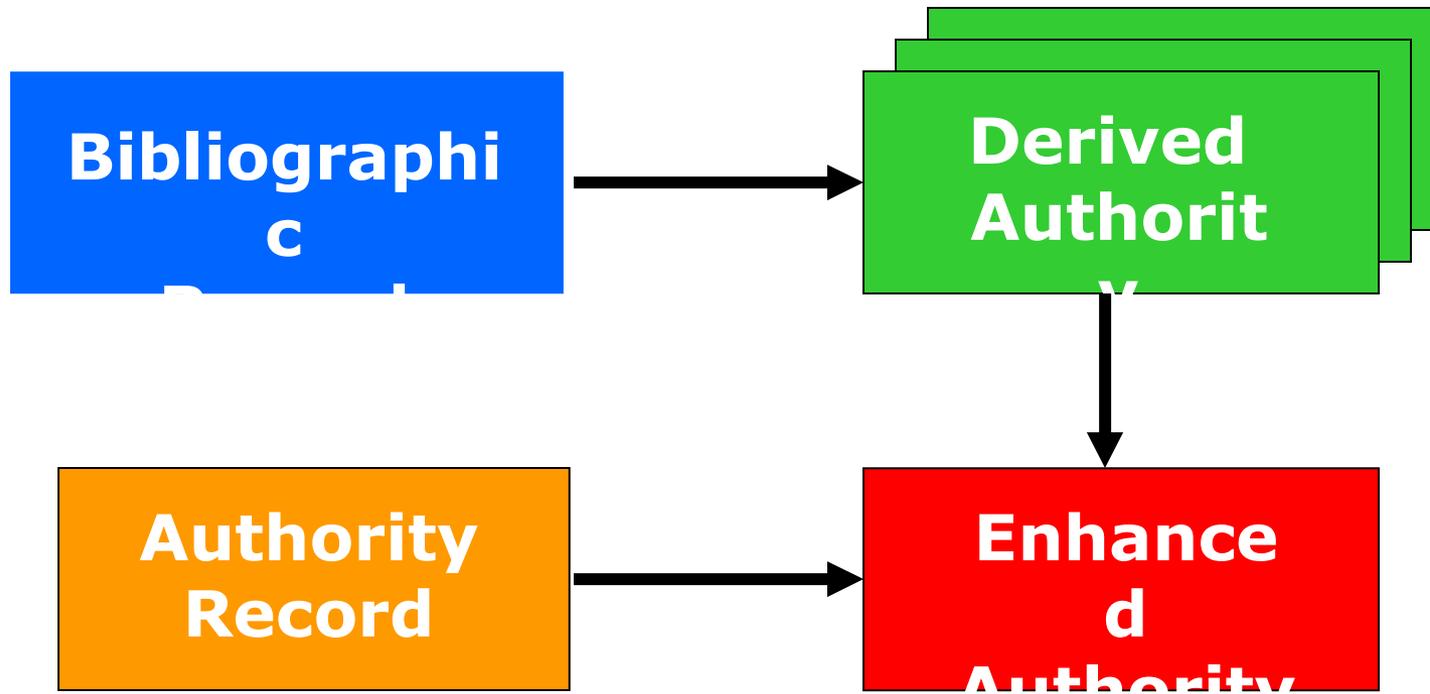
# Current Status

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- Available as linked data with URIs
- Unicode throughout
- UNIMARC and MARC 21 supported
- Preliminary work on geographic names

# Enhancing the Authorities

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# Mining the Bibliographic

## Record

LDR 00638ncm a22002057a 450  
1 5773347  
5 19960820101947.4  
8 960815s1965 oruuua n eng **Language**  
10 \$a 96753638 **LC Control**  
040 \$a DLC \$c DLC **Number**  
019 \$a 17706440  
020 \$c \$2.95  
028 22 \$a 48418 \$b Matrix Publ. Co. **LC**  
045 2 \$b d198006 \$b d198007 **Usage**  
048 \$b va01 \$b ve01 \$a ka01 **Classification**  
050 00 \$a M1258 \$b .L **Place of Publication**  
100 1 \$a Leigh, Mitch. \$d 1928-  
245 14 \$a The man of La Mancha / \$b by Mitch Leigh & Joe Darion;  
arr. By Roland Barrett & Alan Brown. **Publication**  
260 \$a Springfield, OR : \$b Matrix Publ. Co., \$c c1965. **Material**  
300 \$a 1 score (16 p.) ; \$c 18 x 27 cm. **Author**  
500 \$a Brier record. **Date of**  
650 0 \$a Musicals \$x Excerpts. **Type**  
600 10 \$a Leigh, Mitch \$x Musical settings. **Publication**  
700 1 \$a Darion, Joe. **n**

# Derived Authority Record

---

```
00505cz a2200157n 450
0 1 xlc 1
1 3 OCoLC
2 5 19880921165012.4
3 8 880831n|acannaab|n aaa c
4 040 $a OCoLC $b eng $c OCoLC $f viaf
5 100 1 $a Leigh, Mitch.
6 903 $a 88030979
7 910 14 $a the man of la mancha
8 921 $a matrix publ co
9 922 $a oru
10 930 $a mitch leigh
11 940 $a eng
12 942 $a 234
13 943 $a 196x
14 944 $a cm
15 950 1 $a darian, joo +a 1963-
```

All text is  
normalized  
Subjects are grouped  
Multiple types is by  
deductive  
broad subject areas

# Enhanced Authority Record

---

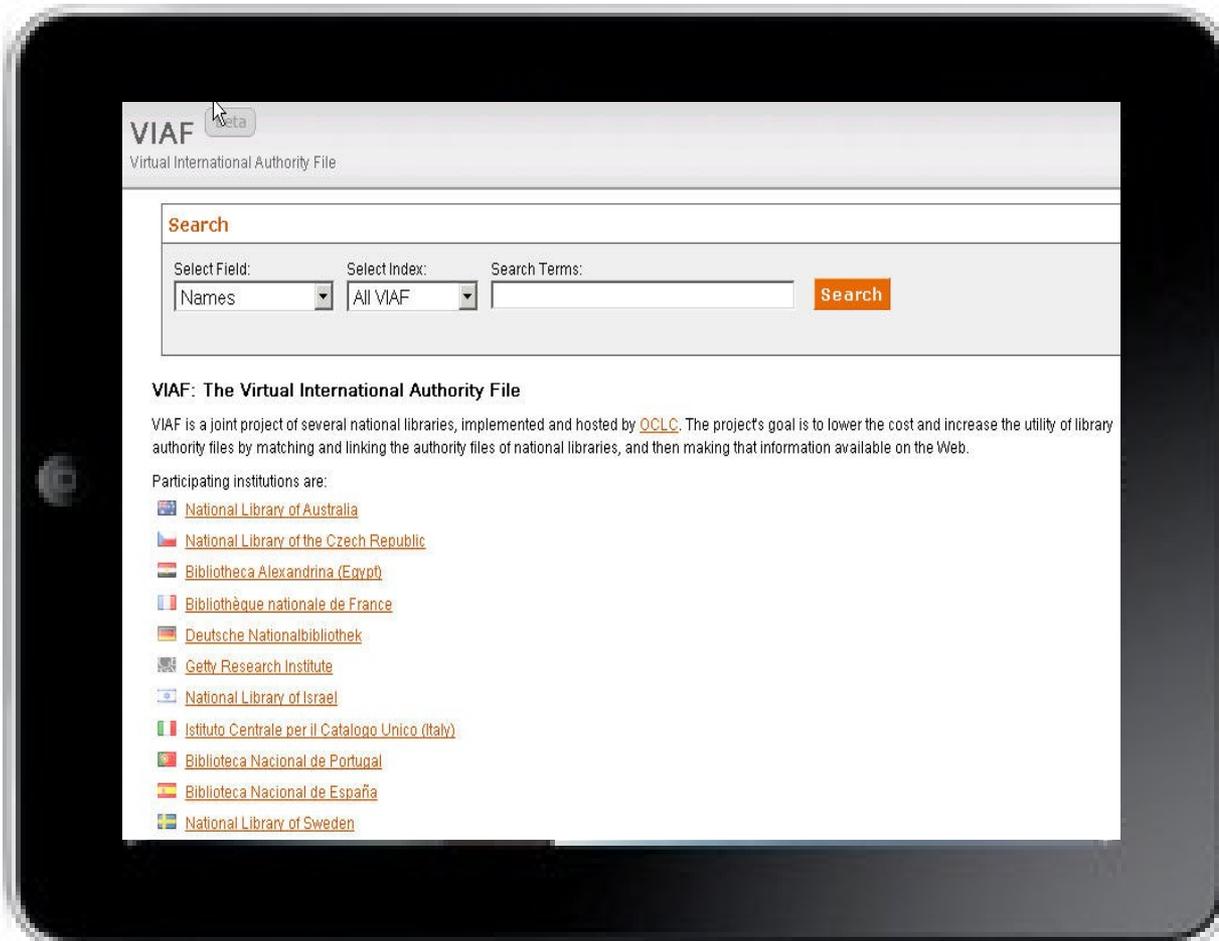
```
00505cz  a2200157n  450
  0    1 oca01144962
  1    5 19880921165012.4
  2    8 840702n| acannaab|          |n aaa |||
  3   10    $a n 88090379
  4   40    $a DLC $c DLC $d DLC
  5  100 1  $a Leigh, Mitch, $d 1928-
  6  670    $a the man of la mancha, c1966: $b t.p. (Mitch
Leigh)
  7  903    $a 84758340 $9 1
  8  903    $a 93710923 $9 1
  9  910 11 $a impossible dream $9 1
 10  910 11 $a century library of music and sound by mitch leigh $9
1
 11  921    $a matrix publ co $9 1
 12  921    $a kapp $9 2
 13  922    $a oru $9 2
 14  930    $a mitch leigh $9 1
 15  940    $a eng $9 2
 16  942    $a 234 $9 2
 17  943    $a 196x $9 1
 18  943    $a 197x $9 1
 19  944    $a cm $9 2
 20  950 11 $a darian, joe $d 1928- $9 1
 21  950 11 $a wasserman, dale $9 1
```

# Information in Bibliographic Records

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- He writes music
- His primary subject area is music
- He was published in the 1960s and 1970s by Matrix Publ. Co. in Oregon and Kapp in New York
- Worked with Joe Darion and Dale Wasserman
- Mitch Leigh is the only name he has used on his publications
- Etc.

# viaf.org



As viewed July 2010

## Search

Select Field:

All Names

Select Index:

All VIAF

Search Terms:

Rodin, Auguste, 1840-1917

Search

## VIAF: The Virtual International Authority File

VIAF is a joint project of several national libraries, implemented and hosted by [OCLC](#). The project's goal is to lower the cost and increase the utility of library authority files by matching and linking the authority files of national libraries, and then making that information available on the Web.

Participating institutions are:

-  [National Library of Australia](#)
-  [National Library of the Czech Republic](#)
-  [Bibliotheca Alexandrina \(Egypt\)](#)
-  [Bibliothèque nationale de France](#)
-  [Deutsche Nationalbibliothek](#)
-  [Getty Research Institute](#)
-  [National Library of Israel](#)
-  [Istituto Centrale per il Catalogo Unico \(Italy\)](#)
-  [Biblioteca Nacional de Portugal](#)
-  [Biblioteca Nacional de España](#)
-  [National Library of Sweden](#)



OCLC

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[Privacy Policy](#)Hosted by [OCLC Research](#) [Send Us a Comment](#) [About VIAF](#)

## Search

Select Field:

All Names

Select Index:

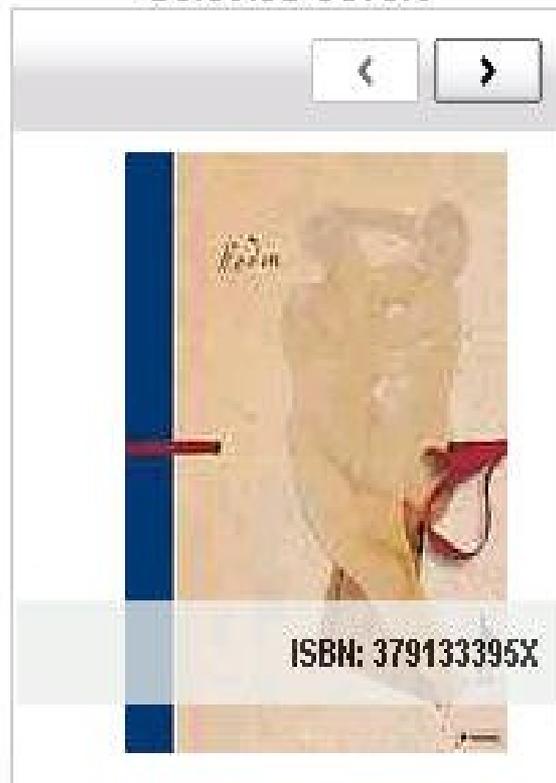
All VIAF

Search Terms:

Rodin, Auguste, 1840-1917

Search

### Selected Covers



Rodin, Auguste, 1840-1917



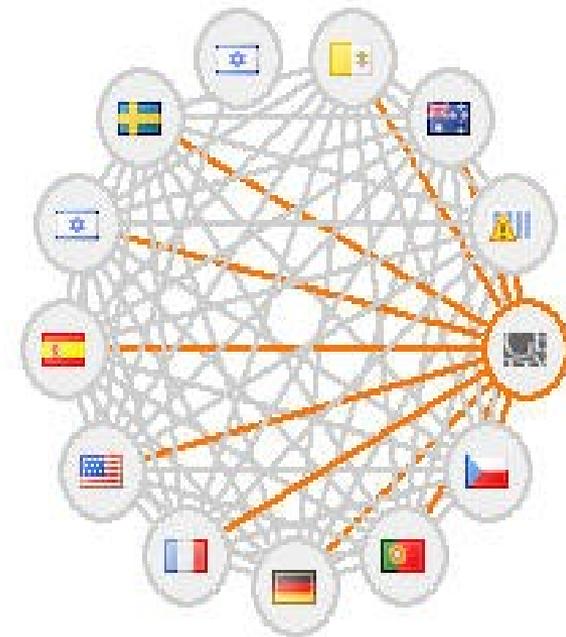
1840-1917 , אױגוסט , רודן

VIAF ID:36923874

# Rodin

## Preferred Forms

-  [100 ⚭ Rodin, Auguste ⚭ 1840-1917](#) 
-  [200 ⚭ Rodin, ⚭ Auguste, ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste, ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste, ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste, ⚭ 1840-1917](#) 
-  [100 ⚭ רודן, אוגוסט, ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste, ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste, ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste ⚭ 1840-1917](#) 
-  [100 ⚭ Rodin, Auguste, ⚭ 1840-1917](#) 
-  [200 ⚭ Rodin ⚭ Auguste ⚭ 1840-1917](#) 



Getty Union List of Artist Names

JPG|500016619

# Rodin

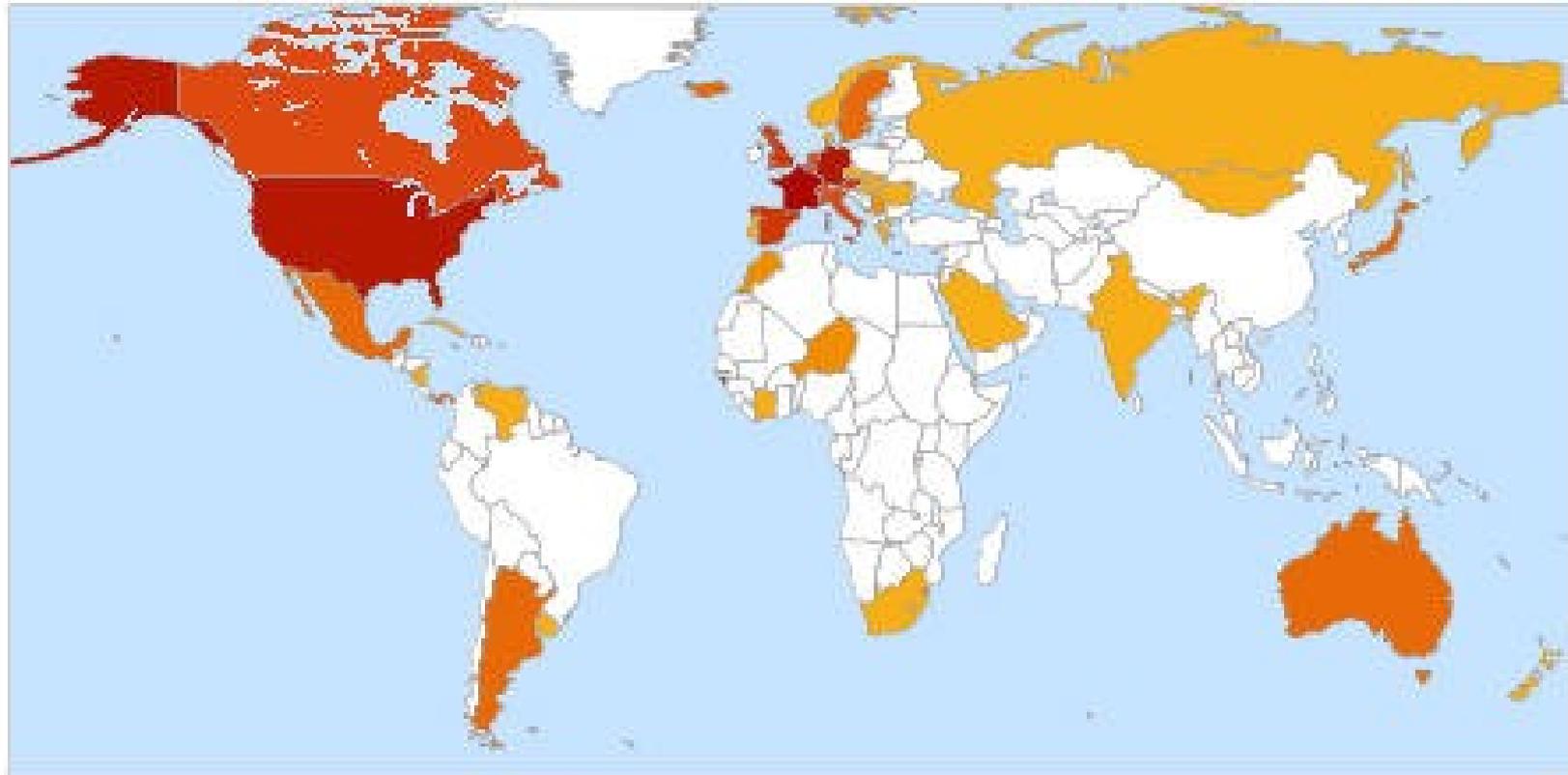
View the Countries List below for more details.

Map View:

[World](#)

[Europe](#)

[Asia](#)



[View Countries List](#)



### Publication History



### Identifiers

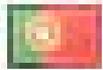
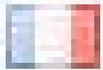
- 431 unique ISBN's



## Personal Information

Gender: Male

Nationality:

FR - France    

Language:

fre - French 

## External Links

[Wikipedia - Auguste Rodin](#)

[WorldCat Identities](#)

# Rodin

12 CRAM

<u>Leader</u>		00000nz##a22....o..4500
<u>008</u>		990203n  a  nna b ##### #aa ###
<u>700</u>	1	‡a Rodin, Auguste ‡d 1840-1917 ‡2 DNB 118601717
<u>700</u>	1	‡a Rodin, Auguste, ‡d 1840-1917 ‡7 jn19990007096 ‡2 NKC jn19990007096
<u>700</u>	1	‡a Rodin, Auguste ‡d 1840-1917 ‡2 JPG 500016619
<u>700</u>	1	‡a Rodin, Auguste ‡d 1840-1917 ‡2 NII DA0100454X
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<u>700</u>	1	‡a ,σσογλσ ,ηρη ‡d 1840-1917 ‡2 NLI heb 000226483
<u>700</u>	1	‡a Rodin, Auguste, ‡d 1840-1917 ‡2 SELIBR 206538
<u>700</u>	1	‡a Rodin, Auguste, ‡d 1840-1917 ‡2 NLI lat 000112357
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<u>700</u>	1	‡a Rodin, Auguste, ‡d 1840-1917 ‡2 LC n 79090126
<u>400</u>	1	‡a Rodin, Auguste ‡2 PTBNP
<u>400</u>	0	‡a Auguste Rodin ‡d 1840-1917 ‡2 JPG
<u>400</u>	0	‡a Francois A. Rene Rodin ‡d 1840-1917 ‡2 JPG

# Rodin

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- <viaf:NameAuthorityCluster rdf:about="viaf/36923874">
  <viaf:names rdf:resource="viaf/36923874/#foaf:Person"/>
  <viaf:names rdf:resource="viaf/36923874/#skos:Concept"/>
  <viaf:names rdf:resource="viaf/36923874/#rdaEnt:Person"/>
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  <viaf:hasEstablishedForm rdf:resource="viaf/36923874/#1840-1917+,טאָגוסט+,ןדער"/>
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  <viaf:hasXRefAlternate rdf:resource="viaf/36923874/#XRefAlternate.Rodin,+Auguste"/>
```

# RDF

# VIAF and Catalogers

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Use as a reference tool:

- To resolve conflicts, questionable dates, forms of name, etc.

Cite as source in 670 \$a, for example:

- BNF in VIAF, date searched
- BNE in VIAF, date searched
- Nat. Lib. of Australia in VIAF, date searched
- LAC in VIAF, date searched

# Next steps for VIAF

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- Better searching
- More “Linked data”
  - Related persons as in WorldCat Identities, Wikipedia, etc.
- Participants beyond libraries
  - Rights management agencies, Publishers
  - Museums, Archives
- More name types
  - Corporate and Family names
  - Uniform titles
  - Geographic names
  - ... not topical terms

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<http://www.viaf.org>

# SKOS

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- Simple Knowledge Organization System
- “Provides a model for expressing the basic structure and content of concept schemes such as thesauri, classification schemes, subject heading lists, taxonomies, folksonomies, and other similar types of controlled vocabulary”—*SKOS Primer*

# SKOS

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- Based on the Resource Description Framework (RDF)
  - Resources can be exchanged between software applications and published on the Web
  - Interconnects data on the Web, helping create the Semantic Web

# id.loc.gov/authorities

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- “Authorities & Vocabularies” from the Library of Congress
- Intent: To provide human and programmatic access to commonly found standards and vocabularies developed by LC

# “Authorities & Vocabularies”

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- *LCSH* is the first offering
  - Subject headings
  - Genre/form headings
  - Children’s subject headings
  - Subdivision records
  - Validation records
- Provides links from *LCSH* headings to RAMEAU headings
  - Exploring Répertoire de vedettes-matière (RVM)

# “Authorities & Vocabularies”

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- Also includes:
  - *Thesaurus for Graphic Materials (TGM)*
  - MARC geographic area codes
  - MARC language codes
  - MARC relator codes

# “Authorities & Vocabularies”

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## ○ Benefits

- Servers can download entire controlled vocabularies and the values within them, in multiple formats
- Available for free on the Web

# “Authorities & Vocabularies”

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- Human end-users can search and view individual headings and data elements and view
  - Details of the record
  - Visualization



## Authorities & Vocabularies

## Authorities & Vocabularies



- ➔ [Authorities & Vocabularies](#)
- ➔ [About](#)
- ➔ [Technical Center](#)
- ➔ [Search & Download](#)
- ➔ [Contact Us](#)



### || About ||

The Library of Congress Authorities and Vocabularies service enables both humans and machines to programmatically access authority data at the Library of Congress via URIs.

➤ [Read more...](#)

### || Available Authorities & Vocabularies ||

➤ [Library of Congress Subject Headings](#)

LCSH has been actively maintained since 1898 to catalog materials held at the Library of Congress. By virtue of cooperative cataloging other libraries around the United States also use LCSH to provide subject access to their collections. In addition LCSH is used internationally, often in translation.



## Library of Congress Subject Headings

### Search Authorities & Vocabularies

Hold CONTROL key for 2 or more

- All
- Library of Congress Subject Headings
- Thesaurus of Graphic Materials
- MARC Code List for Relators
- Preservation Events

#### Details

### Library of Congress Subject Headings

#### URI

<<http://id.loc.gov/authorities#conceptscheme>>

#### About

Library of Congress Subject Headings (LCSH) has been actively maintained since 1898 to catalog materials held at the Library of Congress. By virtue of cooperative cataloging other libraries around the United States also use LCSH to provide subject access to their collections. In addition LCSH is used internationally, often in translation. LCSH in this service includes all Library of Congress Subject Headings, free-floating subdivisions (topical and form), Genre/Form headings, Children's (AC) headings, and validation strings\* for which authority records have been created. The content includes a few name headings

## Search

Your search for "**animated films**" retrieved **17** results. Do you need [assistance with your search?](#)

Heading	Concept Type	LCCN
<a href="#">Animated films</a>	Topical Term →	sh85088032
<a href="#">Animated films</a>	Genre/Form Term	sh2007025313
<a href="#">Animated films</a>	Topical Term →	sj96004798
<a href="#">Animated films and children</a>	Topical Term	sh2005002226
<a href="#">Animated films--Bulgaria</a>	Topical Term	sh85088034
<a href="#">Animated films--France</a>	Topical Term	sh85088035
<a href="#">Animated films--History and criticism</a>	Topical Term	sh2003003086
<a href="#">Animated films--Hungary</a>	Topical Term	sh85088036
<a href="#">Animated films--Japan</a>	Topical Term	sh99004613
<a href="#">Animated films--Kazakhstan</a>	Topical Term	sh86006561
<a href="#">Animated films--Sound effects</a>	Topical Term	sh2003010291
<a href="#">Animated films--Soviet Union</a>	Topical Term	sh86005226
<a href="#">Animated films--Switzerland</a>	Topical Term	sh85088037
<a href="#">Animated films--Ukraine</a>	Topical Term	sh86004276
<a href="#">Animated films--United States--History and criticism</a>	Topical Term	sh2007101146

# “Authorities & Vocabularies”

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- URI for specific LCSH records/  
concepts:
  - id.loc.gov/authorities/[LCCN]
  - id.loc.gov/authorities/sh8508803

## Animated films

This heading is used as a topical heading for works about films that create the illusion of movement in drawings, clay, inanimate objects, or the like, through an animation technique. When used as a topical heading it is subdivided by the appropriate geographic, topical, and/or form subdivisions.

Works on the technical aspects of making animated films, television programs, or videos are entered under Animation (Cinematography).

**URI:** <<http://id.loc.gov/authorities/sh85088032#concept>>

**Type:** Topical Term

**Alternate Labels:** Animated cartoons (Motion pictures); Cartoons, Animated (Motion pictures); Motion picture cartoons; Moving-picture cartoons

### Broader Terms:

- [Caricatures and cartoons](#)
- [Motion pictures](#)

### Narrower Terms:

- [Clay animation films](#)
- [Machinima films](#)
- [Private Snafu films](#)
- [Television broadcasting of animated films](#)
- [Tom and Jerry films](#)

# Animated films

## Related Terms:

- [Abstract films](#)
- [Animation \(Cinematography\)](#)
- [Animation cels](#)

## Examples:

- Note under Animation (Cinematography)

## Sources:

- Hennepin.
- Beaver, F. Dict. of film terms, 1983.
- Katz, E. Film encyc., 1979: under animation.
- LC database, Sept. 24, 1987 (animated film(s); animated cartoon film; animated movies; movie cartoon; animated cartoons)

**LC Classification:** NC1765

**Created:** 1986-02-11

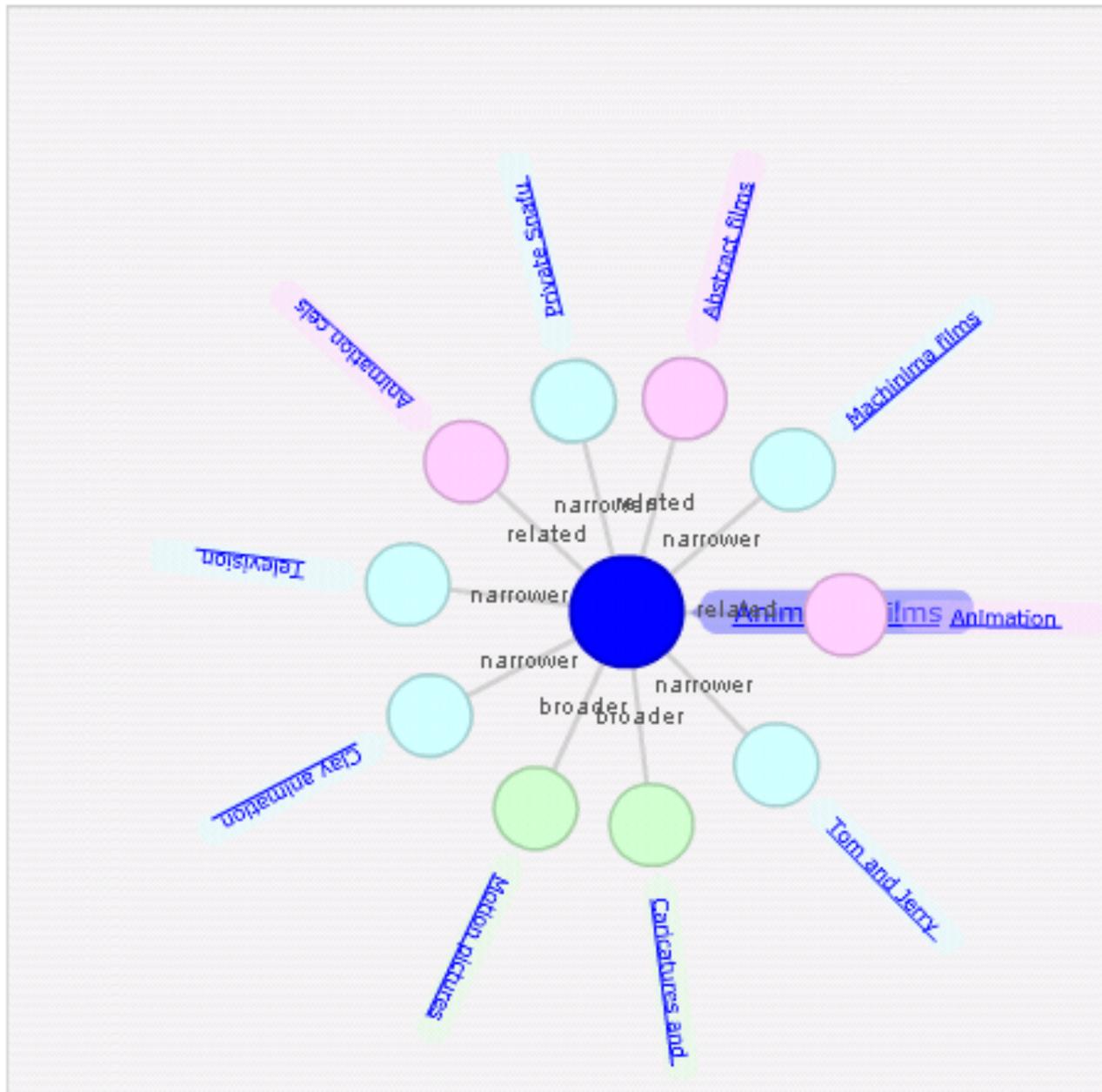
**Last Modified:** 2009-01-16 08:53:06

## Similar concepts from other vocabularies:

- <http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb12549607c> 
- <http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb11955103d> 

**Alternate Formats:** [RDF/XML](#), [N-Triples](#), [JSON](#)

# Animated films



# “Authorities & Vocabularies”

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## ○ Contact information

- Content of site:

Libby Dechman, edec@loc.gov

- Technical questions:

Larry Dixson, ldix@loc.gov

# “Authorities & Vocabularies”

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- A comment form and discussion list are available at

<http://id.loc.gov/authorities/contact.html>

# RDA: Resource Description and Access (U.S. RDA Test Timeline)

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- June 2010 ALA releases RDA Toolkit
- June-Aug.31 ALA allows free access to RDA Toolkit to everyone who registers
- June-Sept. 30 U.S. testers get training and have time to practice
- Oct. 1-Dec. 31 U.S. test of RDA
- Jan-Mar 2011 analysis of test results and decisions by U.S. national libraries

# RDA Controlled Vocabularies - Registries

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- Free on the Web at Metadata Registry (Open Registry hosting for now)

<http://metadataregistry.org/schema/list.html>

## Element Sets: Show detail for RDA Group 1 Elements

[Detail](#) | [Elements](#) | [History](#) | [Maintainers](#)

Label	Type	URI	Status	Updated	Last Updated by	Actions
Title	property	.../Elements/title	New-Proposed	2009-08-09 14:46	DianeH	
Edition statement	property	.../Elements/editionStatement	New-Proposed	2009-08-13 13:25	DianeH	
Place of production	property	.../Elements/placeOfProduction	New-Proposed	2009-08-09 14:14	DianeH	
Date of production	property	.../Elements/dateOfProduction	New-Proposed	2009-08-09 14:29	DianeH	
Copyright date	property	.../Elements/copyrightDate	New-Proposed	2009-08-10 14:42	DianeH	
Identifier for the manifestation	property	.../IdentifierForTheManifestation	New-Proposed	2009-08-11 9:48	DianeH	
Publisher's number for music	subproperty	.../publishersNumberForMusic	New-Proposed	2009-08-20 12:10	DianeH	
Plate number for music	subproperty	.../Elements/plateNumberForMusic	New-Proposed	2009-08-20 12:12	DianeH	
Media type				2009-08-20 9:46	DianeH	
Carrier type				2009-08-10 14:44	DianeH	

**Carrier type**

### Browse...

[Resource Owners](#)

[Vocabularies](#)

[Element Sets](#)

[SPARQL](#)

Feedback

## Element Sets: RDA Group 1 Elements

### Elements: Carrier type

Detail

Statements

History

#### Metadata +

#### Detail

Label:	Carrier type
Name:	carrierType
URI:	<a href="http://RDVocab.info/Elements/carrierType">http://RDVocab.info/Elements/carrierType</a> (RDF)
Description:	A categorization reflecting the format of the storage medium and housing of a carrier in combination with the type of intermediation device required to view, play, run, etc., the content of a resource.
Comment:	
Type:	property
Domain:	
Range:	
Status:	New-Proposed
Language:	English
Note:	Definition source: RDA 3.3.0.1.1

URI

# RDA Carrier Types

Vocabulary: Show detail for RDA Carrier Type

Details

Concepts

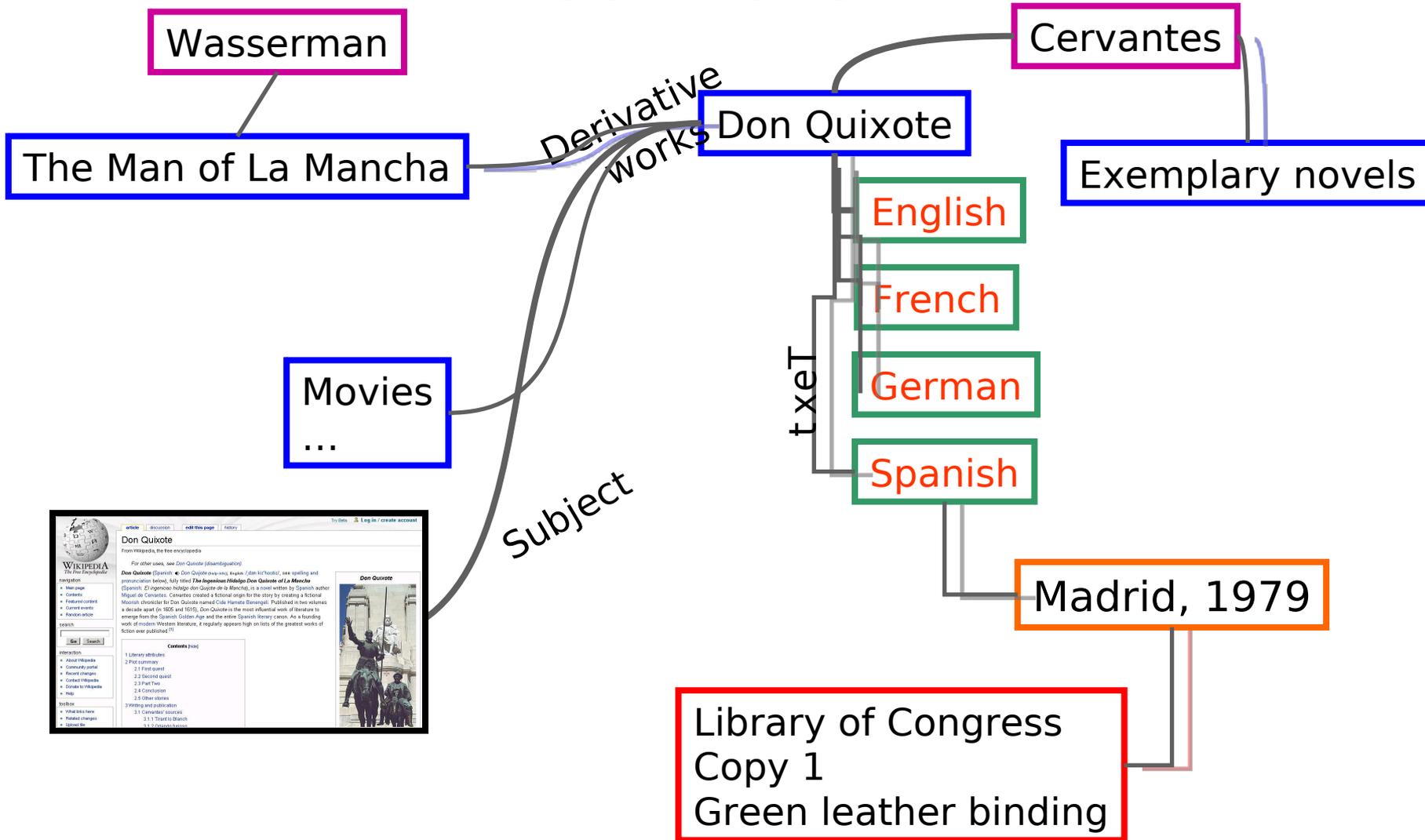
History

Versions

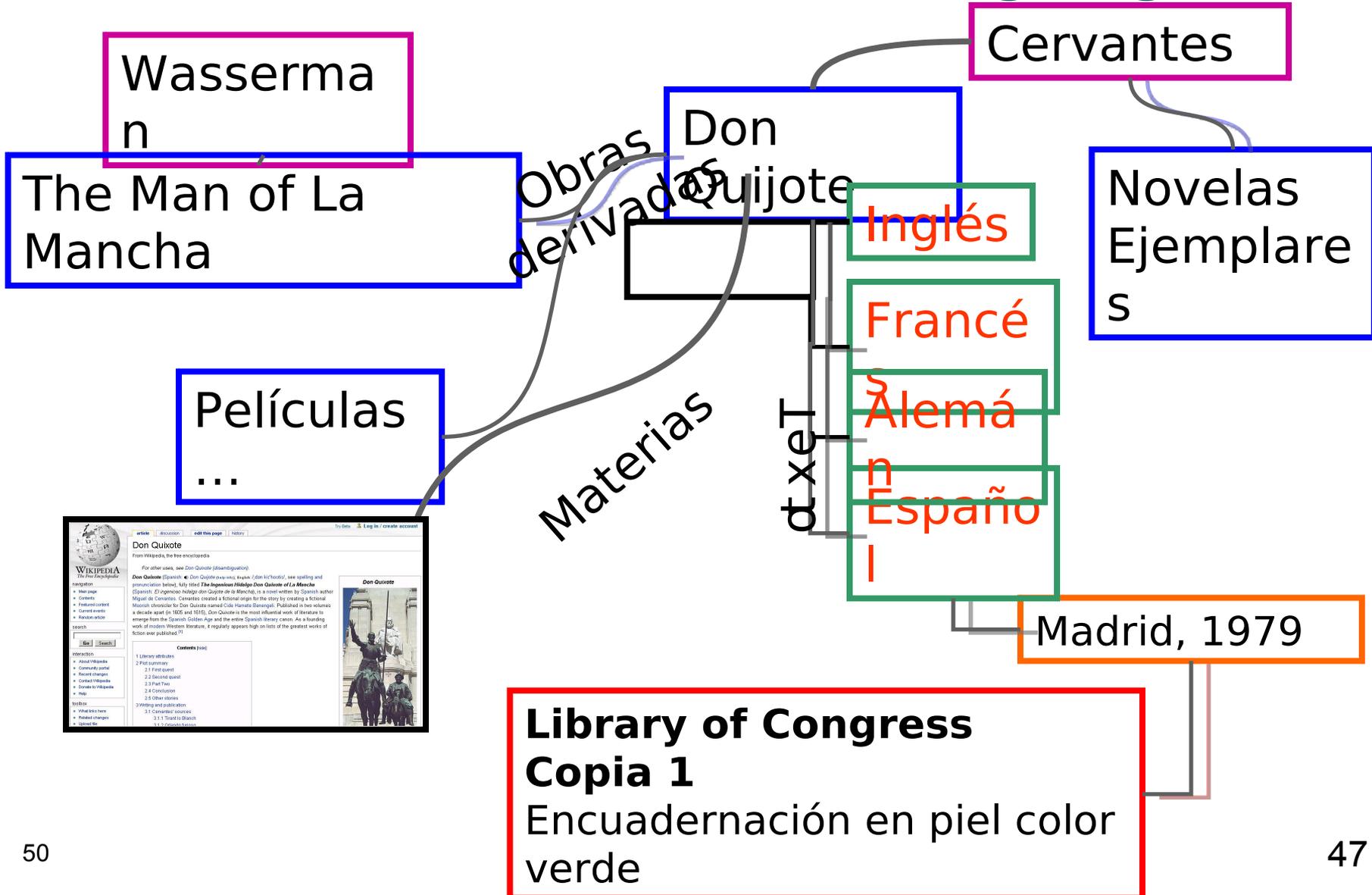
Maintainers

Preferred Label	URI	Status	Updated
aperture card	.../termList/RDACarrierType/1021	New-Proposed	2009-08-06 0:47
Audio carriers	.../termList/RDACarrierType/1001	New-Proposed	2010-01-05 4:58
audio cartridge	.../termList/RDACarrierType/1002	New-Proposed	2009-11-08 9:48
audio cylinder	.../termList/RDACarrierType/1003	New-Proposed	2009-08-06 0:24
audio disc	.../termList/RDACarrierType/1004	New-Proposed	2009-08-06 0:26
audio roll	.../termList/RDACarrierType/1006	New-Proposed	2009-08-06 0:29
audiocassette	.../termList/RDACarrierType/1007	New-Proposed	2009-08-06 0:31
audiotape reel	.../termList/RDACarrierType/1008	New-Proposed	2009-08-06 0:32
card	.../termList/RDACarrierType/1045	New-Proposed	2009-08-06 1:45
computer card	.../termList/RDACarrierType/1011	New-Proposed	2009-08-06 0:34
Computer carriers	.../termList/RDACarrierType/1010	New-Proposed	2009-08-06 0:33
computer chip cartridge	.../termList/RDACarrierType/1012	New-Proposed	2009-08-06 0:35
computer disc	.../termList/RDACarrierType/1013	New-Proposed	2009-08-06 0:36
computer disc cartridge	.../termList/RDACarrierType/1014	New-Proposed	2009-08-06 0:38
computer tape cartridge	.../termList/RDACarrierType/1015	New-Proposed	2009-08-06 0:39
computer tape cassette	.../termList/RDACarrierType/1016	New-Proposed	2009-08-06 0:40
computer tape reel	.../termList/RDACarrierType/1017	New-Proposed	2009-08-06 0:41

# RDA Linked Data

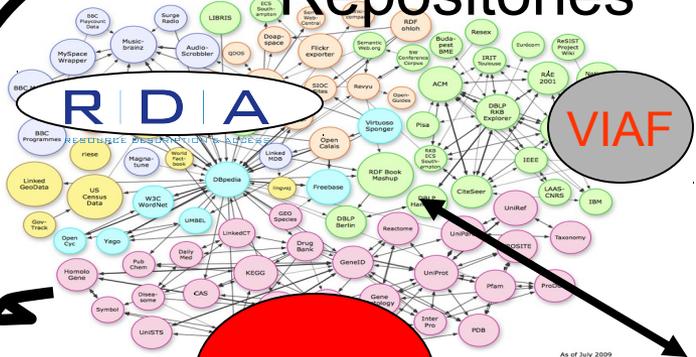


# RDA Linked Terms for Languages



Databases,  
Repositories

Services



Web front  
end

Internet  
"Cloud"



# iPhone apps to connect to libraries via WorldCat (OCLC)

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- Pic2shop app

- <http://www.youtube.com/watch?v=MHiuaDXipWQ>

- RedLaser app

- <http://www.youtube.com/watch?v=fDv1cAYR5wc&feature=related>